

Let Sleep Work For You!



Sleep. It's a basic necessity of life, as important to our health and well-being as air, food and water. When we sleep well, we wake up feeling refreshed, alert and ready to face daily challenges.

When we don't, every part of our lives can suffer. Our jobs, relationships, productivity, health and safety (and that of those around us) are all put at risk. And lack of sleep due to sleep loss or sleep disorders is taking a serious toll.

The 2002 National Sleep Foundation (NSF) *Sleep in America* poll found that 74 percent of American adults are experiencing a sleeping problem a few nights a week or more, 39% get less than seven hours of sleep each weeknight, and more than one in three (37 percent) are so sleepy during the day that it interferes with daily activities. In the past century, we have reduced our average time in sleep. Though our society has changed, our brains and bodies have not. Sleep deprivation is affecting us all and we are paying the price.

Sleep Quantity and Quality Count

Getting enough continuous quality sleep contributes to how we feel and perform the next day, but also has a huge impact on the overall quality of our lives.

Getting enough sleep refers to the amount of sleep you need to not feel sleepy the next day. If sleepiness interferes with or makes it difficult to do your daily activities, you probably need more sleep. Although sleep experts generally recommend an average of 7-9 hours

per night, some people can get along with less while others need as much as ten hours to feel alert the next day.

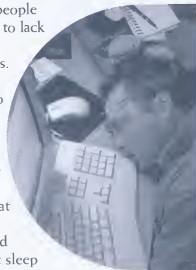
Sleep requirements vary over the life cycle. Newborns and infants need a lot of sleep and have several periods of sleep throughout a 24-hour time period. Naps are important to them as well as to toddlers who may nap up to the age of 5. As children enter adolescence, their sleep patterns shift to a later sleep-wake cycle, but they still need around 9 hours of sleep. Throughout adulthood, even as we get older, we need 7-9 hours of sleep. Sleep patterns may change, but the need for sleep remains the same.

You Are How You Sleep

Quantity of Sleep – Sleep Deprivation has Consequences

Planning your day so that you allow enough time to sleep is essential to your overall well-being and quality of life. Such planning includes allowing enough time to awaken

naturally – without an alarm clock – so you get as much sleep as you need! According to the 2002 poll, over 80% of American adults believe that not getting enough sleep leads to poor performance at work, risk for injury and poor health, and difficulty getting along with others. Often, people become irritable due to lack of sleep, resulting in serious consequences. Studies show that lack of sleep leads to problems completing a task, concentrating, making decisions and unsafe actions. Recent research suggests that sleep deprivation impacts on aging and diabetes. Insufficient sleep may also make it difficult to exercise and can reduce the benefit of hormones released during sleep. Just as compelling are the serious consequences of sleep deprivation that lead to approximately 100,000 sleep-related vehicle crashes each year and result in 1,500 deaths.



Why Nighttime Sleep is Important

Sleep is regulated by two brain processes. One is the restorative process when sleep occurs naturally in response to how long we are awake, the longer we are awake, the stronger is the drive to sleep. The second process controls the timing of sleep and wakefulness during the day-night cycle. Timing is regulated by the circadian biological clock that is located in our brain. This part of the

SLEEP NEEDS OVER THE LIFE CYCLE

Infants/Babies*	0-2 months: 10.5-18.5 hours
	2-12 months: 14-15 hours
Toddlers/Children*	12-18 months: 13-15 hours
	18 months - 3 years: 12-14 hours
	3-5 years: 11-13 hours
	5-12 years: 9-11 hours
Adolescents	8.5-9.5 hours
Adults/Older Persons	On average: 7-9 hours

*Total time includes naps.



National Sleep Foundation
Waking America to the Importance of Sleep®

brain, the SCN or *suprachiasmatic nucleus*, is influenced by light so that we naturally tend to get sleepy at night when it is dark and are active during the day when it is light. In addition to timing the sleep-wake cycle, the circadian clock regulates day-night cycles of most body functions, ensuring that the appropriate levels occur at night when you are sleeping. For example, important hormones are secreted, blood pressure is lowered and kidney functions change. Research even indicates that memory is consolidated during sleep. This "clock" in the brain runs on a 24-hour cycle with the result that we feel most sleepy around 2:00-4:00 am and in the afternoon between 1:00-3:00 pm. We need to have continuous sleep that becomes restorative and results in feeling refreshed and alert for the day ahead.

Quality of Sleep – Poor Sleep has Consequences

Quality sleep also means that it is continuous and uninterrupted. As we get older, sleep can be disrupted due to pain or discomfort, the need to go to the bathroom, medical problems, medications, and sleep disorders as well as poor or irregular sleep schedules. Establishing a regular bed and wake schedule and achieving continuous sleep helps you sleep in accordance with your internal biological circadian clock and experience all of the sleep stages necessary to reap the restorative, energizing and revitalizing benefits of sleep.



States and Stages of Sleep

As we sleep, we pass through different states and stages of sleep – more likely to be experienced with continuous sleep. This "sleep architecture" follows a predictable pattern of REM (rapid-eye movement) and NREM (Non-Rapid Eye Movement) sleep throughout a typical 8-hour period. Each of these states alternates every 90 minutes.

Both states are important to experiencing *quality* sleep. Again, getting the right mix and enough of both REM and NREM sleep will help you maintain your natural sleep architecture and have restful and restorative sleep.

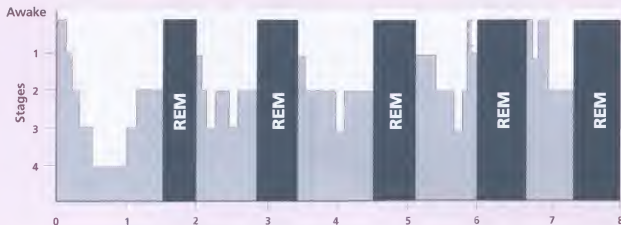
NREM: 75% of night* As we begin to fall asleep, we enter NREM, which is composed of Stages 1-4.

Stage 1	Light sleep; between being awake and entering sleep
Stage 2	Onset of sleep; becoming disengaged with the environment; breathing and heart rate are regular and body temperature goes down
Stage 3 & 4	Deepest and most restorative sleep; blood pressure drops; breathing slower; energy regained; and hormones are released for growth and development

REM: 25% of night* First occurs about 90 minutes after falling asleep and increases over later part of night; necessary for providing energy to brain and body; brain is active and dreams occur as eyes dart back and forth; bodies become immobile and relaxed; muscles shut down; breathing and heart rate may become irregular; important to daytime performance and may contribute to memory consolidation

*Time spent in these states and stages of sleep varies by age.

STATES AND STAGES OF SLEEP



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Getting in Rhythm to Enhance the Benefits of Sleep

Establishing a regular bed and wake time helps promote sleep by getting you in sync with your circadian clock so that you experience all of these sleep stages. Here are some additional practical tips for promoting quality sleep:

TIPS FOR GOOD SLEEP

- ▶ Avoid caffeine (coffee, tea, soft drinks, chocolate) and nicotine (cigarettes, tobacco products) close to bedtime.
- ▶ Avoid alcohol as it can lead to disrupted sleep.
- ▶ Exercise regularly, but complete your workout at least 3 hours before bedtime.
- ▶ Establish a regular relaxing, not alerting, bedtime routine (e.g. taking a bath or relaxing in a hot tub).
- ▶ Create a sleep-conducive environment that is dark, quiet and preferably cool and comfortable.

If you are having sleep problems or regular daytime sleepiness, it is helpful to use a sleep diary published by the National Sleep Foundation to record your sleep patterns and the amount of sleep you get. A sleep diary helps you examine some of your health and sleep habits so that you and your doctor can pinpoint any causes of poor sleep.

Our 24/7 Society and Nature's Clock

The Perils of Shift Work

With around-the-clock activities, our 24/7 society can keep us from allocating enough time for sleep or put us on irregular schedules. Feeling sleepy is a common experience, particularly for over 20 million American shift workers. The body never adjusts to shift work! Working nontraditional schedules is a risk for on-the-job accidents and car crashes. It is often difficult to get quality sleep during the day and support from others is important. To help themselves adapt, shift workers can follow the sleep tips at left and create a good sleep environment at home during non-working hours.

Jet Lag Shifts Your Sleep Schedule

As many Americans travel across time zones for business or leisure, they also experience jet lag, which puts them in conflict with their natural sleep patterns. The shift in time and light forces the brain and body to alter from its normal pattern and adjust to the new time zone. Try to shift your sleep and wake times gradually to the new schedule a few days before you leave home and adopt the sleep/wake cycle of your destination upon arrival.



When to Talk to Your Doctor

Our slumber can be plagued by over 80 known sleep problems and disorders. It is important to talk to your doctor or a sleep specialist as these can be diagnosed and are treatable. If you are having difficulty sleeping, be sure to maintain a sleep diary and complete the following NSF sleep assessment tool:

HOW'S YOUR Sleep?

☒ CHECK IF ANY OF THE FOLLOWING APPLY TO YOU:

- ☐ Snore loudly
- ☐ You or others have observed that you stop breathing or gasp for breath during sleep
- ☐ Feel sleepy or doze off while watching TV, reading, driving or engaged in daily activities
- ☐ Have difficulty sleeping 3 nights a week or more (e.g., trouble falling asleep, wake frequently during the night, wake too early and cannot get back to sleep or wake unrefreshed)
- ☐ Feel unpleasant, tingling, creeping feelings or nervousness in your legs when trying to sleep
- ☐ Interruptions to your sleep (e.g., nighttime heartburn, bad dreams, pain, discomfort, noise, sleep difficulties of family members, light or temperature)

This tool and the Sleep Diary can be found on NSF's website. Using both tools and reading the NSF sleep sheet, *Sleep Talk with your Doctor*, will help prepare you for your visit with your doctor.

Some of the more common sleep disorders include:

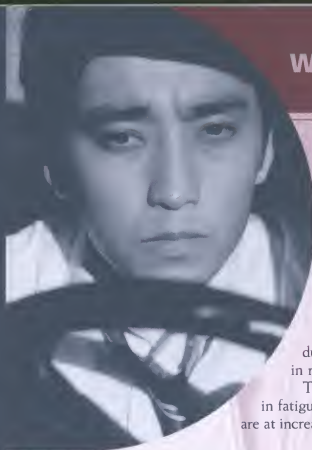
- ▶ **Circadian Rhythm Disorders** — The complex biological "clock" in humans sometimes breaks down. In *delayed sleep phase syndrome*, the "clock" runs later than normal. The sufferer often cannot fall asleep before 3 or 4 a.m. and cannot "wake" before noon. In *advanced sleep phase syndrome*, a person falls asleep early, for example at 7 or 8 p.m. and wakes at 3 or 4 a.m., and is unable to fall back asleep.
- ▶ **Insomnia** is a sleep problem experienced by over 50% of Americans, according to the 2002 NSF *Sleep in America* poll, who report difficulty falling asleep, frequent awakenings, waking too early and having trouble getting back to sleep, and waking unrefreshed. Insomnia can be short or long-term and may be due to stress, an underlying medical or psychiatric problem such as depression, a loss or poor sleep/health habits.
- ▶ **Sleep apnea** sufferers actually stop breathing for several seconds, waking up hundreds of times per night, snorting and gasping for air.



Sleep apnea is most common in men and overweight people. Untreated, it's linked to high blood pressure and an increased risk of heart attack and stroke.

- Persons with *narcolepsy* experience "sleep attacks" that can occur at any time. Strong emotions sometimes bring on a sudden loss of muscle control called "cataplexy." When falling asleep or waking up, sufferers also may experience brief paralysis and/or vivid images and sounds.
- Those with *restless legs syndrome* (RLS) have unusual sensations in the legs (and sometimes arms) that disturb sleep. Only movement brings relief. Individuals may also experience periodic limb movement disorder, PLMD, or a jerking of the legs during sleep.
- Sleepwalking*, a tendency to get up and wander about while asleep, is most common in children and tends to run in families. Protect the sleepwalker by keeping doors and windows locked.
- Sufferers of *sleep terrors* often scream or fight but have no memory of the event the next day.

Treatments for sleep disorders may include medication, light therapy, continuous positive airway pressure (CPAP) devices, and scheduled naps.



When Sleepiness Equals Danger

Even occasional sleeping problems can make daily life difficult. Lack of sleep can make you irritable and impatient, have trouble concentrating, and you could become a dangerous driver.

According to a 1997 NSF poll, *Sleeplessness, Pain and the Workplace*, sleep loss costs U.S. employers an estimated \$18 billion in lost productivity. And the National Highway Traffic Safety Administration (NHTSA) conservatively estimates that vehicle crashes due to driver fatigue cost Americans \$12.5 billion per year in reduced productivity and property loss.

The greatest cost? More than 1,500 people die every year in fatigue-related crashes. Those with untreated sleep problems are at increased risk for these crashes.

Getting Help

Most sleep disorders can be successfully treated or controlled once properly diagnosed. Sleep disorders centers are staffed by physicians and other medical professionals with specialized training in sleep medicine. They will ask you detailed questions about your sleep problems and may monitor your sleep overnight before recommending a specific treatment.

Contact the National Sleep Foundation (NSF) or visit the NSF Web site for more information on sleep, sleep disorders and links to organizations and sleep centers. You can also obtain a variety of publications online or by joining the NSF, including a free Sleep Diary.

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